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A new perspective on Lake and Pond management

Northport Marina, Arenac Co.
2024 Year End Report

Sims Township, Arenac Co.

9.26 Surface Acres

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2024 Northport Marina Year-End Report:

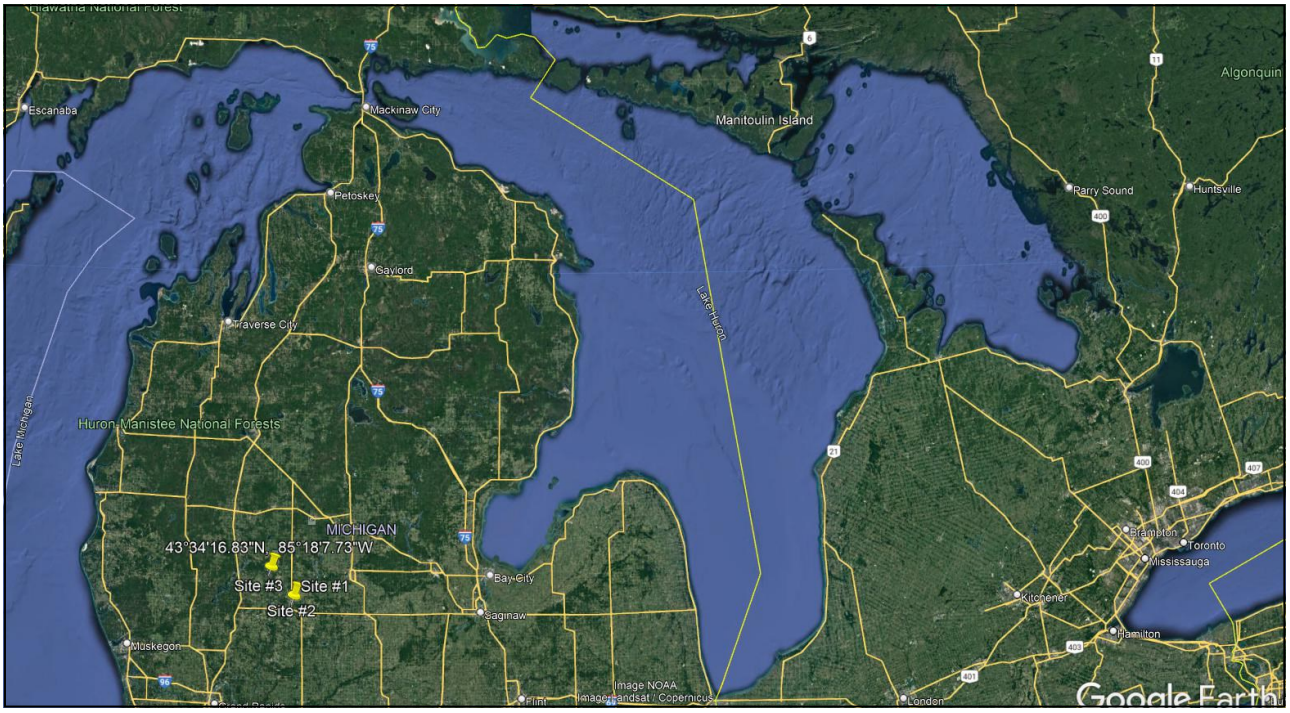
Background information:

Lake Size - 23,007 Sq. Miles

Max Depth – 750 Feet

Avg. Depth – 195 Feet

Primary Uses: Lake Huron is classified as a public lake, recreational boating and fishing are common. The lake is highly developed with single family residences, commercial and industrial uses.



Map of Lake Huron

Management Strategy: Various methods are been used to control Curly-Leaf Pondweed and Eurasian Milfoil, invasive species found in many waterbodies throughout the United States. The current focus of management is to maintain minimal populations of invasive species while promoting native species to create bio-diversity. These steps will help improve the overall health of aquatic life. We also continue to monitor for any new exotic plant infestations, harmful algal blooms and water quality issues.

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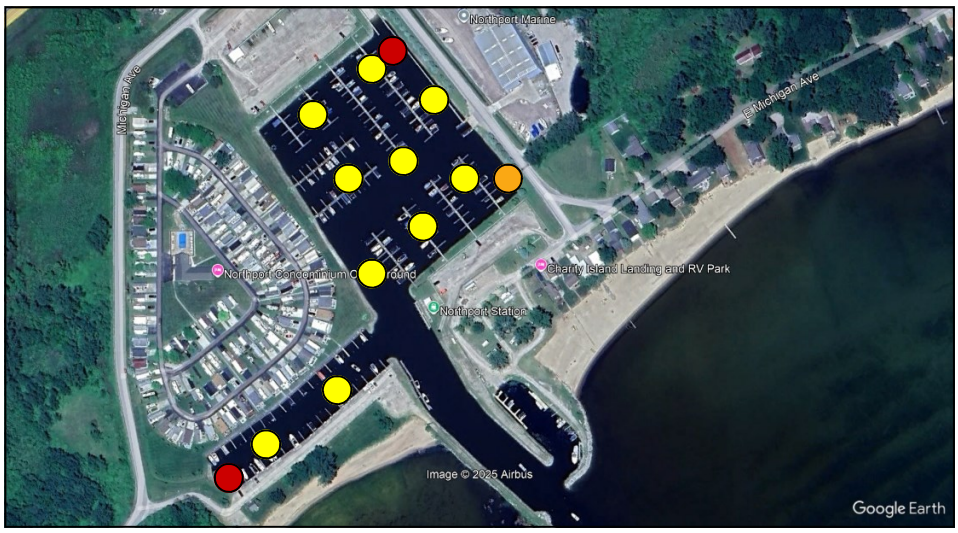
2024 Northport Marina Year-End Report:

2024 Invasive species Location map:



Invasive Species Locations:

- Starry Stonewort
- Eurasian Milfoil
- Purple Loosestrife
- Curly-Leaf Pondweed
- Flowering Rush
- Phragmites
- Observed Blue-Green Algae Blooms

Details of invasive species on pages 5-8

Historic Invasive species Location maps:

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2024 Northport Marina Year-End Report:

Management Recommendations for 2025:

Northport Marina currently does contain known invasive species that are actively under management. With a combined effort between the lake manager and the marina management, we have been able to identify and contain these problem species. Going forward the following should be consider:

- Continued monitoring and active management of invasive species.
- Education of employees / visitors to identify invasive species and how to prevent further infestation.
- Recommendations to homeowner on proper fertilizer usage / other nutrient abatement strategies.
- Monitoring of water quality issues.

Please find in the following pages some identification information of invasive plants. We also have information at our website www.helpmylake.com

If you have any questions or would like to inquire about other services we provide please contact us anytime at 989-967-3600.

Michigan Lakefront Solutions is a Michigan owned business that specializes in aquatic weed and algae control in lakes, ponds, canals and marinas in central and northern Michigan.

We have 40 years of combined experience in the Lake and Pond Management industry. With backgrounds in both large and small operations, we can combine the best of both worlds. We aim to deliver a diverse array of services, yet maintaining a focus on the one on one connection with our customers and the waterbody they value. As part of our dedication to maintain healthy aquatic environments we offer the following services:

- Water testing to ensure a proper balance of nutrients
- Aeration systems to maintain oxygen levels and improve fish health
- Fountains for an aesthetically pleasing addition to any pond
- Lake management plans to give a detailed view of your lake
- Bactria / enzymes for excess muck and nutrient reduction

Michigan Lakefront Solutions is a member and active in the following organizations:

- Midwest Aquatic Plant Managers Association
- Kawkawlin River Watershed Association
- Aquatic Eco Restoration Foundation
- Michigan Chapter North American Lake Management Society
- North American Lake Management Society

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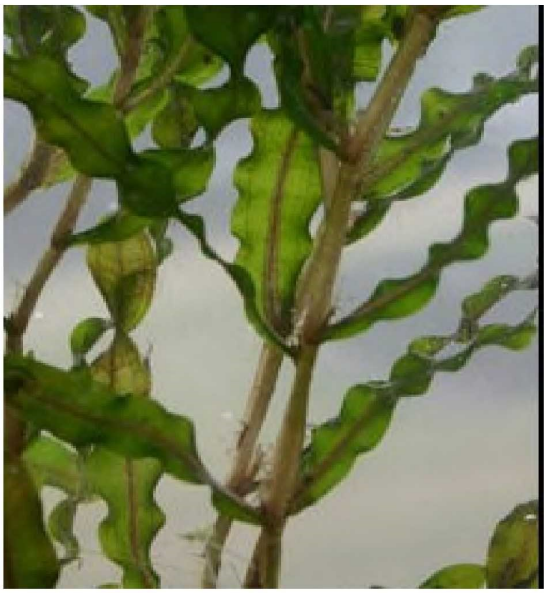
Invasive Species Reference

Eurasian Watermilfoil is an exotic, aggressive growing plant in Michigan lakes and ponds. Its origin has been traced to the Hudson Bay area during the 1940's.

Because it is not native to Michigan waters, there are no natural controls to prevent growth. Milfoil can reproduce by seed or by fragmentation. A small piece or fragment of the plant can form roots and develop into a new plant. In fact, a single wisp can multiply into dense mats that can restrict boating, fishing and swimming.

Eurasian Watermilfoil



Curly-leaf pondweed was introduced into North America sometime in the late 1800's, and has now spread throughout many parts of the U.S. and Canada. This species usually emerges early each spring, flowers and sets seed in the late spring and early summer, then collapses sometime in July. In some cases re-growth communities can be found through August.

These plants are capable of surviving under the ice during the winter. Curly leaf can be a severe nuisance during the early part of the peak recreational use season. Early control of this species is recommended to reduce oxygen stress within the water body.

Curly Leaf Pondweed

Purple loosestrife grows most abundantly in parts of Canada, the northeastern United States, the Midwest, and in scattered locations in the West. Although this species tolerates a wide variety of soil conditions, its typical habitat includes cattail marshes, sedge meadows, and bogs. It also occurs along ditch, stream, and riverbanks, lake shores, and other wet areas. In such habitats, purple loosestrife forms dense, monospecific stands that can grow to thousands of acres in size, displacing native, sometimes rare, plant species and eliminating open water habitat. The loss of native species and habitat diversity is a significant threat to wildlife, including birds, amphibians, and butterflies, that depend on wetlands for food and shelter.

Purple loosestrife monocultures also cause agricultural loss of wetland pastures and hay meadows by replacing more palatable native grasses and sedges (Mal et al. 1992; Thompson et al. 1987).

Purple Loosestrife

Flowering rush is a rhizomatous, perennial monocot. It has narrow, linear leaves that arise from a stout rhizome). The leaves may be emergent, floating, or submersed. The emergent leaves are fleshy and triangular. The submersed and floating leaves are long and ribbon-like resembling those of wild celery (Eel Grass). The flower stalk rises above the leaves with a terminal cluster of many flowers. The flowers have 3 petals and 3 sepals. The flowers are most often pink but can be white.

Flowering rush most frequently grows as an emergent in shallow water along the shorelines of lakes, ponds, rivers and shallow marshes. The submersed growth form is found in deeper waters. Flowering rush will grow in a variety of sediments and water depths. Flowering occurs in late June to mid August and fruit is set by late summer.

Flowering Rush

Phragmites (Common reed) is a tall, coarse perennial with stout rhizomes. The stems are stout up to 4 m tall and 5-15 mm thick. The leaves are flat, stiff, 1-6 cm broad and to 6 dm long, serrate, tapering to long tips.

Plants grow in marshes, shores, often in tidal waters, along streams, lakes and estuaries. The invasive *Phragmites* is more likely to be found in disturbed sites such as roadsides, construction areas, agricultural fields, or along developed shorelines. Colonies of the introduced species tend to be denser than those of the native subspecies. Plants can form extensive colonies from rhizomes. Spread is by wind or waterborne seeds or vegetatively through rhizomes or rhizome fragments.

Phragmites

Invasive Species Alert

Courtesy of Michigan.gov

Starry Stonewort

(*Nitellopsis obtusa*)

Established in Michigan

Identification:

- Whorls of 4-6 branchlets/leaves with blunt tips
- Star-shaped bulbils are produced at the nodes, generally 3-6 mm wide
- Can reach up to 33 inches

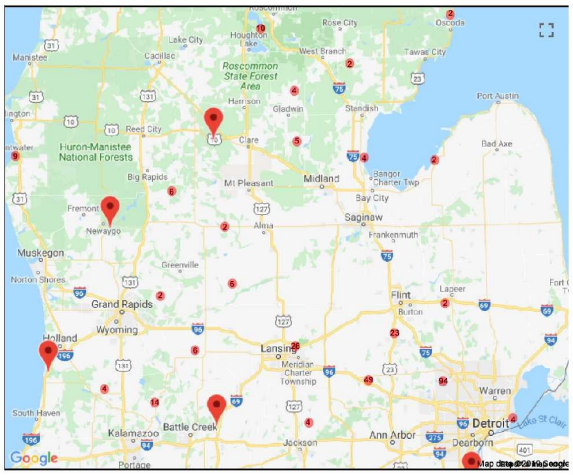
Habitat: This submerged annual macroalga invades lakes, ponds, reservoirs, and slow moving rivers. It will inhabit freshwater habitats ranging from 3 feet to 95 feet in depth.

Native Range: Europe and western Asia

U.S. Distribution: Michigan, northern Indiana, southeastern Wisconsin, Minnesota, and the northeast United States

Local Concern: Starry stonewort forms dense mats in lakes and can significantly reduce the diversity of other aquatic plants. Dense mats of vegetation can also impede movement of fish, spawning activity, water flow, and recreational activities.

Distribution map courtesy of Midwest Invasive Species Network:



Animal Safety Alert

Cyanobacterial blooms can be deadly for pets and livestock.

When in doubt, keep animals out!

Cyanobacteria (also called blue-green algae) are microscopic organisms that can be found naturally in all types of water. Sometimes cyanobacteria rapidly grow out of control, or bloom. Cyanobacterial blooms are most commonly found in fresh water, such as lakes, rivers, and streams.

Cyanobacterial blooms can make toxins (poisons) that are deadly for animals.

- Pets and livestock can get very sick and die within hours to days after swallowing cyanobacterial toxins.
- The toxins can be in the cyanobacteria or in the water.

Signs of a cyanobacterial bloom

Foam, scum, mats, or paint-like streaks on the water's surface

Different colors like green, blue, red, or brown

As the bloom dies off, it may **smell like rotting plants**.

Cyanobacteria **bloom more often in summer and fall**, but can bloom anytime.

You cannot tell if a cyanobacterial bloom is toxic or not just by looking at it.

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

CS 319451-E